

SYNERGISTIC IMPROVEMENT IN THE DIAGNOSIS AND TREATMENT OF MENTAL ILLNESS, DEMENTIA, AND CHRONIC PAIN

Award Amount: \$1,462,158

Principal Investigator: Dr. Matthew Byerly, Director of MSU's Center for Mental Health Research & Recovery

Research Need:

Mental health conditions such as major depression, obsessive compulsive disorder, Alzheimer's Disease, chronic pain, PTSD, and substance abuse can be better understood through research that links the underlying neuroscience of the conditions. The research aims to ensure that Montanans with mental illness can get the right diagnosis, as early as possible, and receive the most appropriate and effective treatment.

- Montana has one of the highest suicide rates in the country, which is linked to untreated depression
- There are an estimated 18,000 people living with Alzheimer's in MT; number expected to reach 27,000 people by 2025
- The cost of housing one person in the MT Mental Health Nursing Care Center is \$122,000/year
 - Improving the health of 20 people in one year so they don't require institutionalization will save taxpayers over \$2.4M

Primary Objectives:

1. Develop a brain function analysis tool that improves speed & accuracy of clinical diagnostic process
2. Conduct study on use of deep TMS (transcranial magnetic stimulation) and place system in Butte at Western MT Mental Health Center – may be effective in treating alcohol abuse, depression, & suicide
3. Chronic pain research: Support research collaboration between SiteOne Therapeutics (non-opioid treatment for chronic pain) and MSU Animal Research Facility
4. Suicide prevention in high school students: Adapt European-developed intervention program to rural Montana setting

Collaborations/Research Team:

Montana State University

Center for Mental Health Research & Recovery
Department of Cell Biology & Neuroscience
Department of Psychology
Department of Computer Science

Industry Partners

Western Montana Mental Health Center - Butte
SiteOne Therapeutics - Bozeman
Neuralynx Inc. - Bozeman
NAMI Montana – National Alliance on Mental Illness
Applied Brain and Vision Sciences, Inc. – Victoria, BC